Project Northland

Benefit-cost estimates updated June 2016. Literature review updated June 2014.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our Technical Documentation.

Program Description: Project Northland is a multilevel, universal intervention designed to prevent substance use among adolescents in middle school. The 6th grade home component targets parent-child communication via homework assignments, group discussions, and the establishment of a communitywide task force. The 7th grade school-based curriculum, which focuses on improving resistance skills and social norms regarding teen alcohol use, includes class discussions, games, and role playing. The 8th grade components include the peer-led Powerlines curriculum, a mock town meeting, and a community action project. Our review of Project Northland is limited to the 6th-8th grade implementation model and does not include the Class Action high school component.

Benefit-Cost Summary Statistics Per Participant

Benefits to:			
Taxpayers	$225	Benefit to cost ratio	$4.70
Participants	$390	Benefits minus costs	$696
Others	$266	Chance the program will produce	
Indirect	$3	benefits greater than the costs	74 %
Total benefits	$885		
Net program cost	($188)		
Benefits minus cost	$696		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2015). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$12	$28	$6	$45
Labor market earnings associated with high school graduation	$402	$183	$185	$76	$846
Health care associated with smoking	$16	$50	$61	$25	$152
Property loss associated with alcohol abuse or dependence	$0	$0	$1	$0	$1
Costs of higher education	($29)	($19)	($9)	($10)	($66)
Adjustment for deadweight cost of program	$0	$0	$0	($94)	($94)
Totals	$390	$225	$266	$3	$885

[1] In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2] "Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3] "Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$64	2013	Present value of net program costs (in 2015 dollars)	($188)
Comparison costs	$0	2013	Cost range (+ or -)	10 %

The per-student cost estimate includes teacher time to provide six hours of intervention over eight sessions per year to approximately 26 students per class. The estimate also includes training and implementation materials costs obtained from the National Registry of Evidence-based Programs and Practices and the curriculum publisher (http://www.hazelden.org/OA_HTML/ibeCCtpItmDspRte.jsp?a=b&item=15546; http://legacy.nreppadmin.net/ViewIntervention.aspx?id=25).

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant
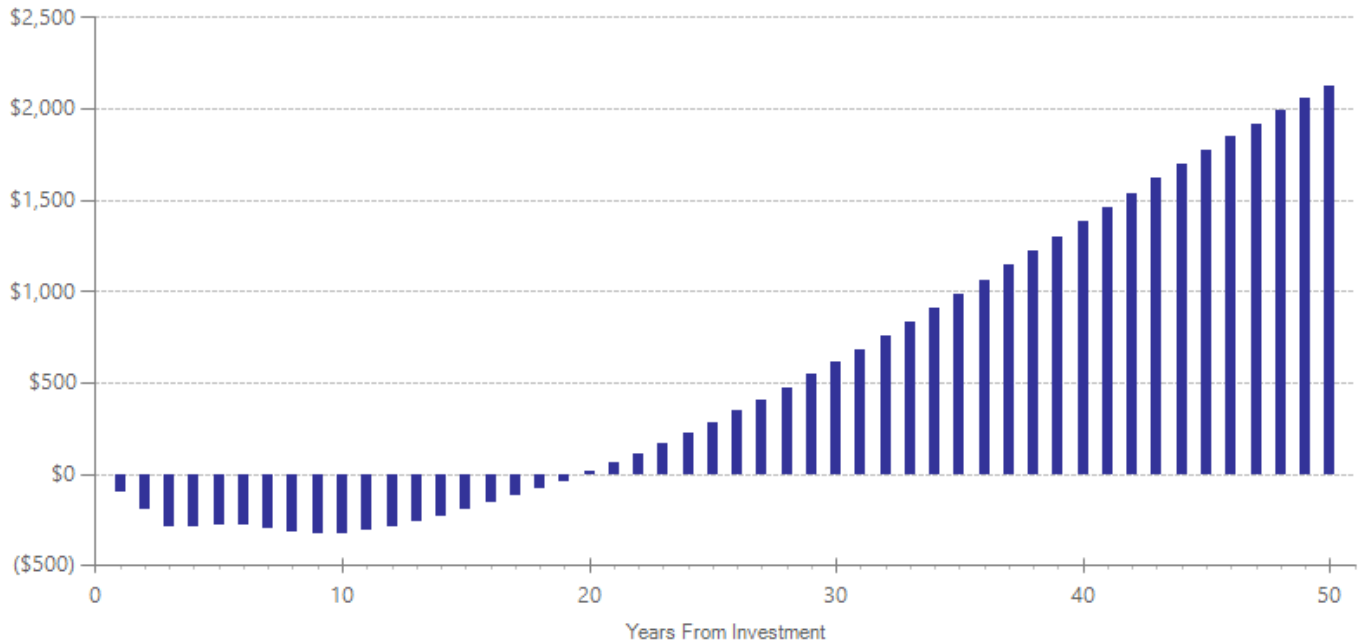
The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Smoking before end of middle school	1	951	-0.059	0.061	12	-0.059	0.061	15	-0.179	0.004
Cannabis use before end of middle school	1	951	-0.033	0.100	12	-0.033	0.100	15	-0.099	0.336
Alcohol use before end of middle school	3	4057	-0.034	0.021	12	-0.034	0.021	15	-0.094	0.001
Youth binge drinking	1	1401	-0.025	0.037	12	-0.025	0.037	22	-0.076	0.039

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Komro, K.A., Perry, C.L., Veblen-Mortenson, S., Farbakhsh, K., Toomey, T.L., Stigler, M.H., Jones-Webb, R., . . . Williams, C.L. (2008). Outcomes from a randomized controlled trial of a multi-component alcohol use preventive intervention for urban youth: Project Northland Chicago. *Addiction, 103*(4), 606-618.

Perry, C.L. et al. (1996). Project Northland: Outcomes of a communitywide alcohol use prevention program during early adolescence. *American Journal of Public Health, 86*(7), 956-965.

Perry, C.L., Williams, C.L., Komro, K.A., Veblen-Mortenson, S., Stigler, M.H., Munson, K.A., et al. (2002). Project Northland: Long-term outcomes of community action to reduce adolescent alcohol use. *Health Education Research, 17*(1), 117-132.

West, B., Abatemarco, D., Ohman-Strickland, P.A., Zec, V., Russo, A., & Milic, R. (2008). Project Northland in Croatia: results and lessons learned. *Journal of Drug Education, 38*(1), 55-70.

Washington State Institute for Public Policy